

again, may guide one of the tools for the holes to be finished directly, and then removable bushings are inserted to guide the other tools used.

Miscellaneous Types of Drill Bushings. — As mentioned, it was, some years ago, general practice to provide even stationary bushings with a shoulder or head, as shown in bushing *C*, Fig. 2. This will prevent the bushing from being pushed through the jig by the cutting tool, but this seldom happens if the bushings are made to fit the tool correctly. Sometimes the shoulder is used to take the thrust of a stop-collar, which is

Table I. Dimensions of Stationary Drill Bushings

clamped on the drill, to allow it to go down to a certain depth, as shown in Fig. 4, in which *C* is the stop-collar, *D* the wall of the jig, and *E* the stationary bushing; *F* is the work. In such a case, a shoulder on the bushing should be provided.

If the work to be drilled is located against a finished seat or boss on the wall of the jig, and the wall is not thick enough to take a bushing of standard length, then it is common practice to make a bushing having a long head, as shown in Fig. 5. The length *A* of the head can be extended as far as necessary to get the proper bearing. As the bushing is driven in place